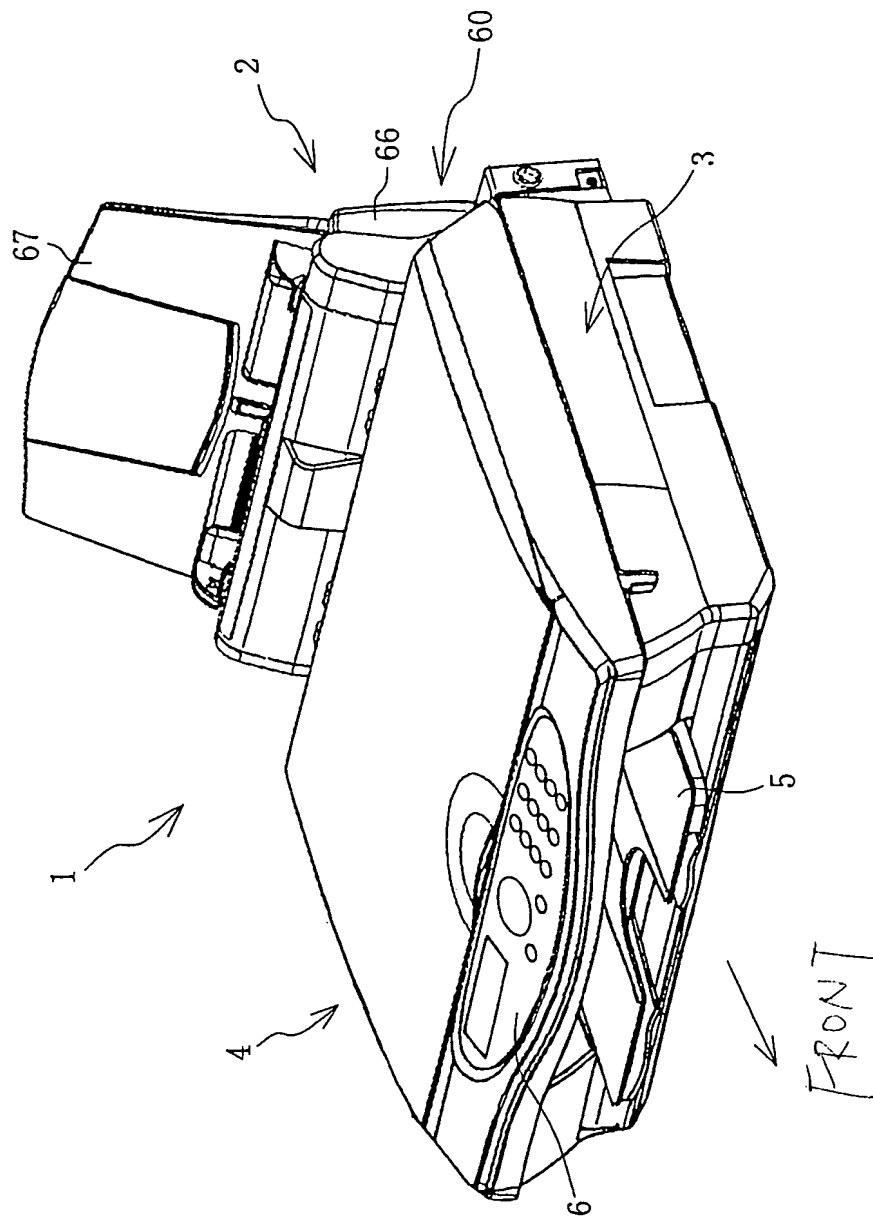


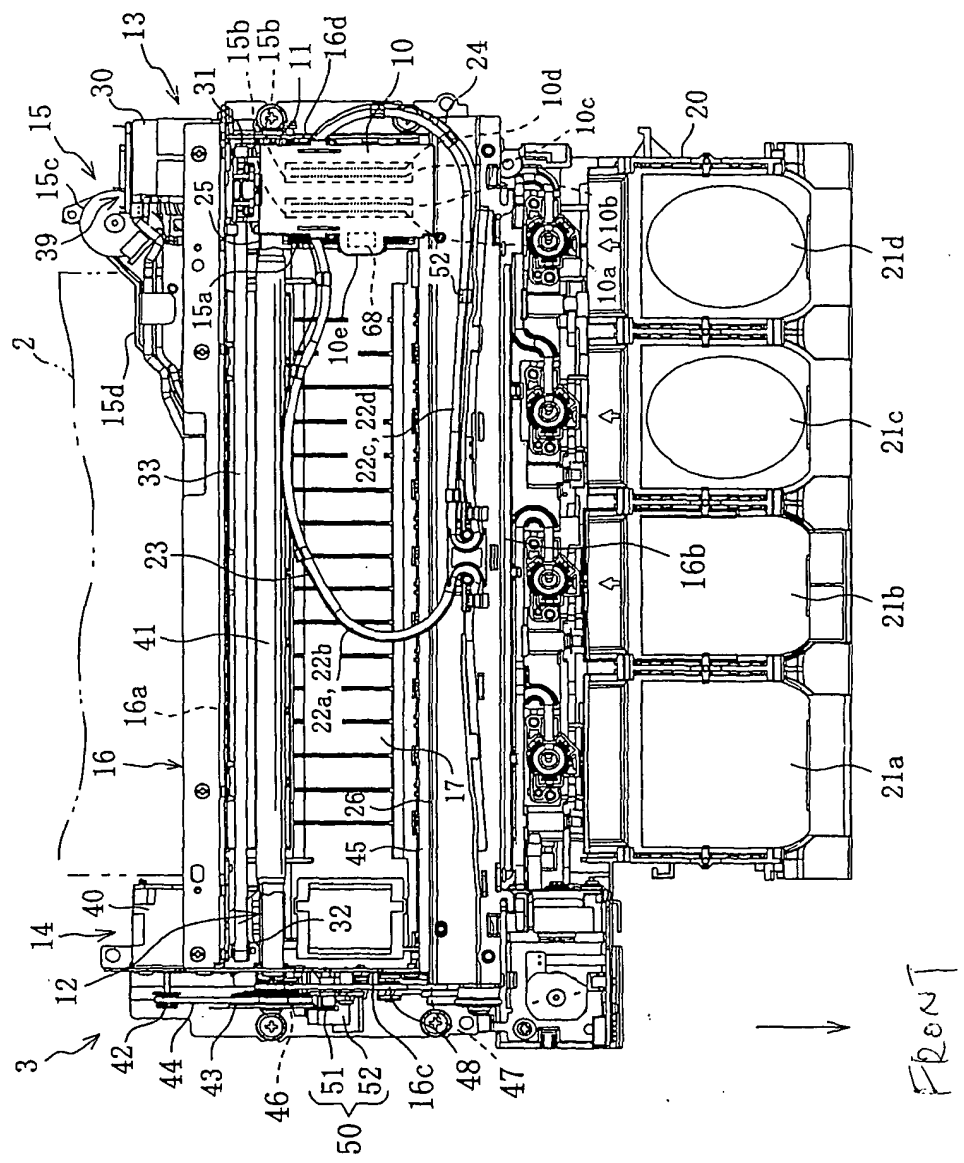
Fig. 1



【図2】

Fig- 2

【図3】



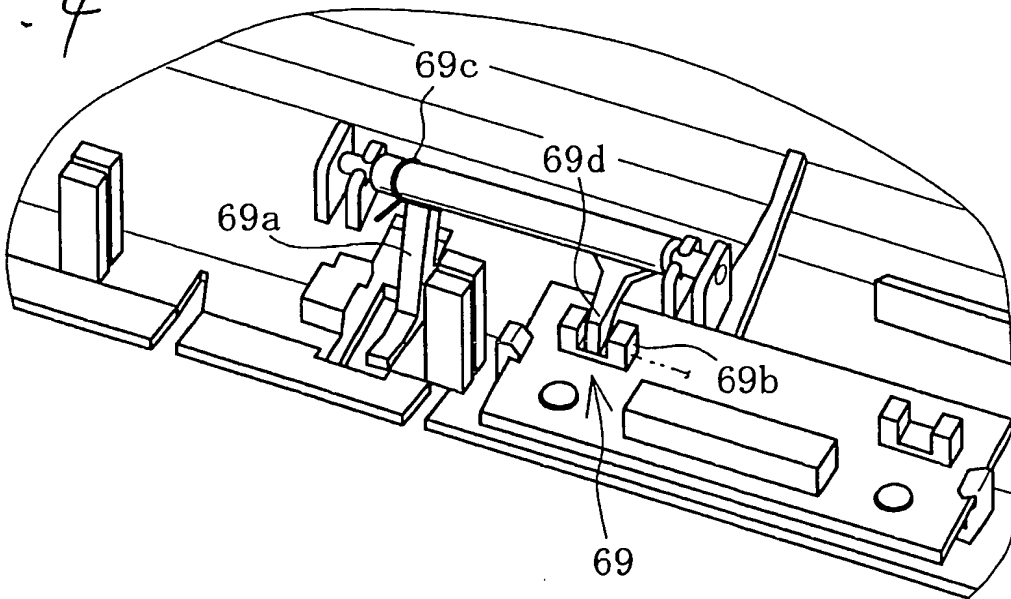
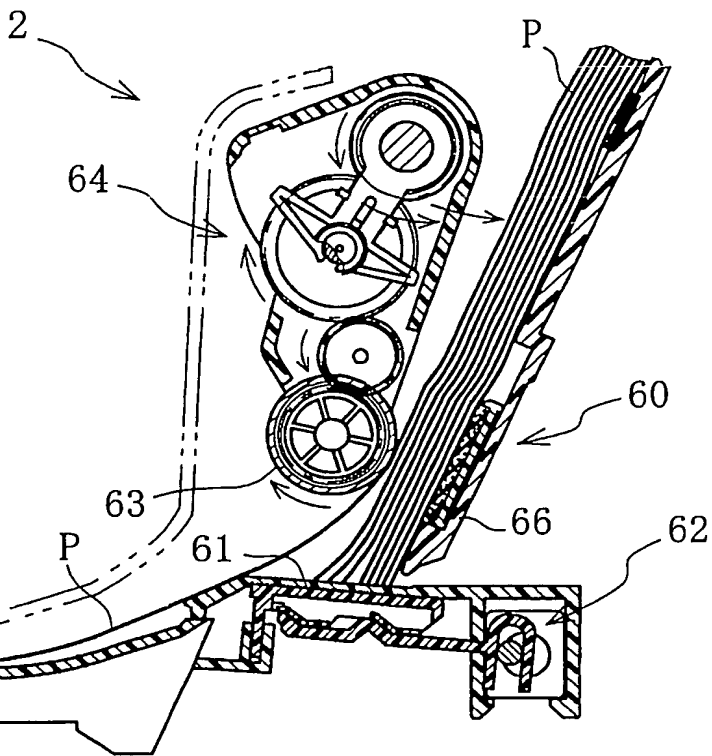
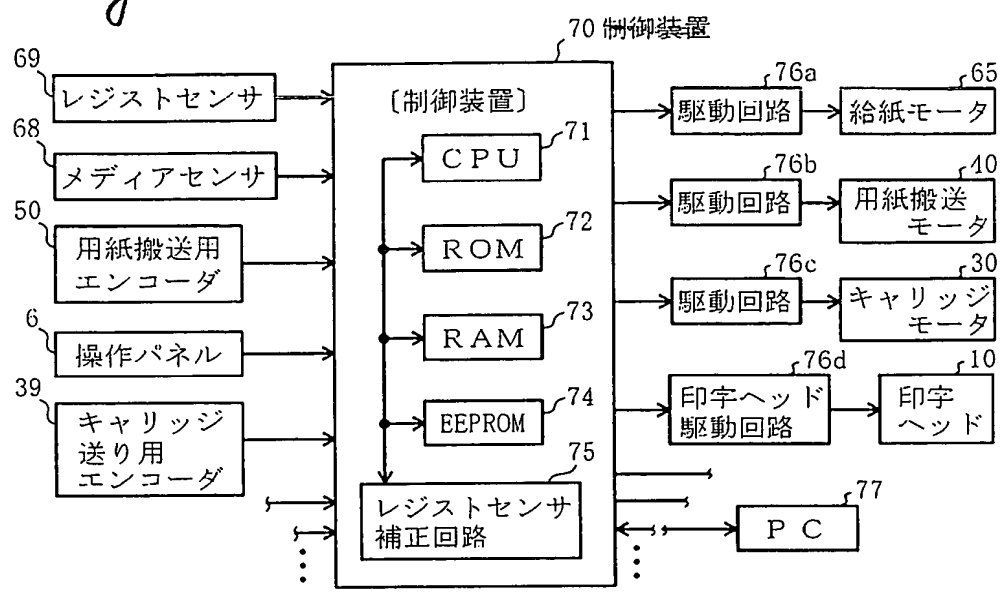
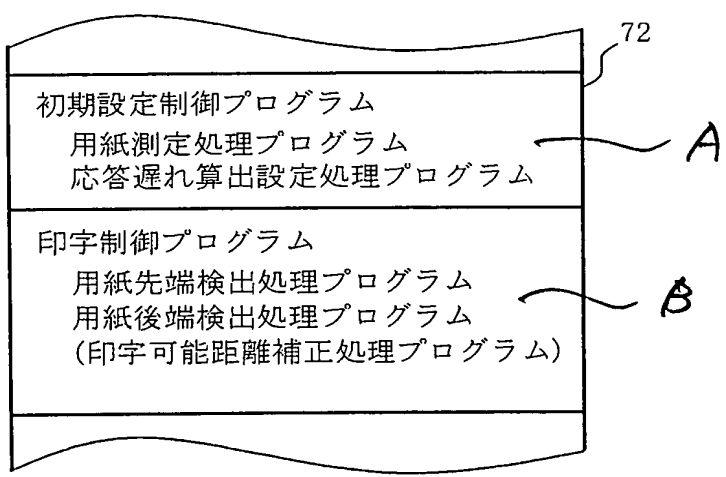


Fig. 5



【図6】

Fig-6



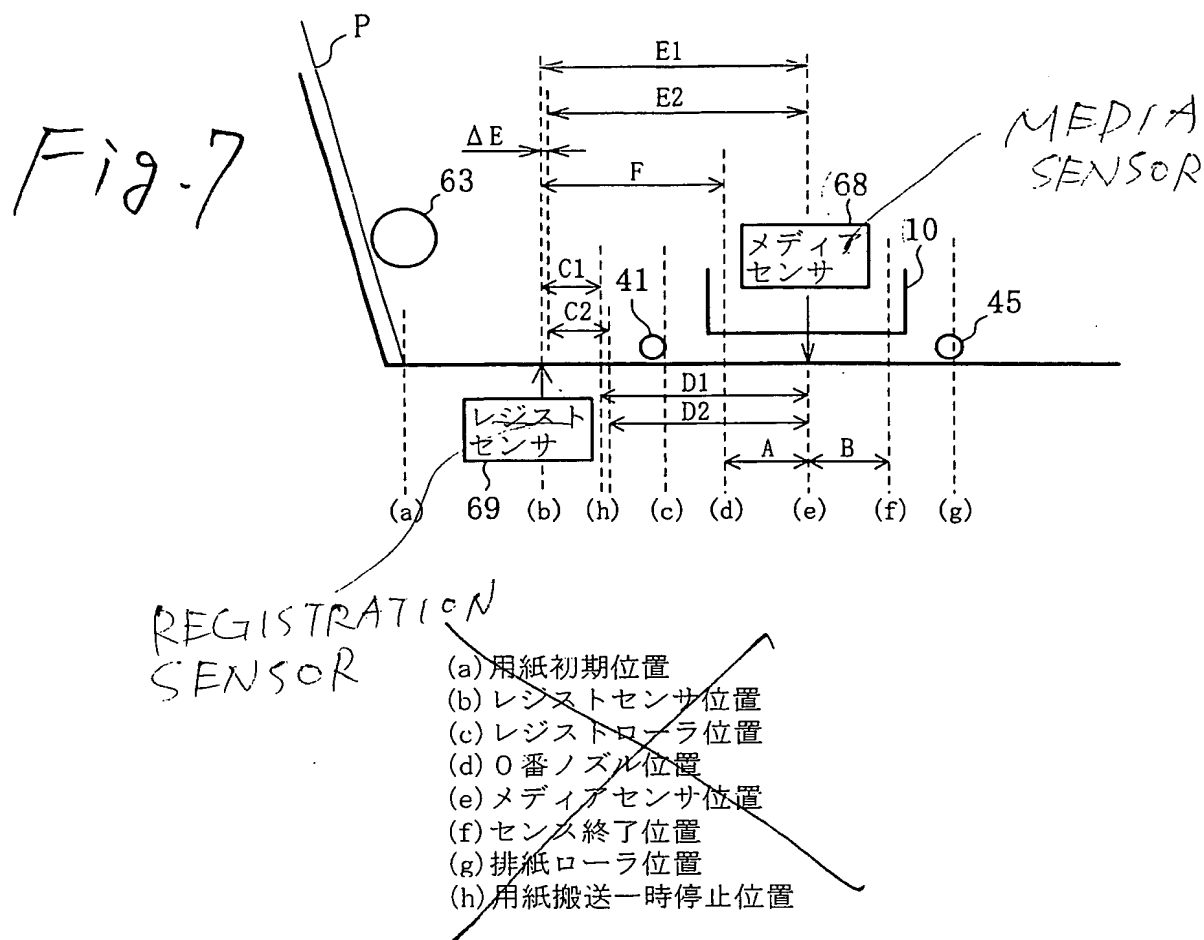
【図7】

[FIG. 5]

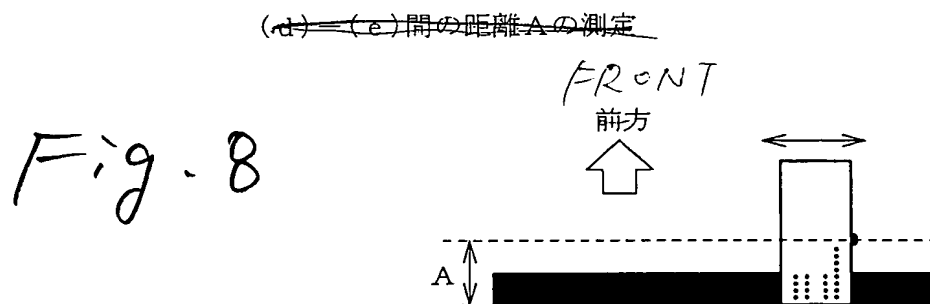
69	REGISTRATION SENSOR
68	MEDIA SENSOR
50	PAPER TRANSPORT ENCODER
6	OPERATION PANEL
39	CARRIAGE FEED ENCODER
70	CONTROL UNIT
75	REGISTRATION SENSOR CORRECTING CIRCUIT
76a	DRIVE CIRCUIT
65	PAPER FEED MOTOR
76b	DRIVE CIRCUIT
40	PAPER TRANSPORT MOTOR
76c	DRIVE CIRCUIT
30	CARRIAGE MOTOR
76d	PRINT HEAD DRIVE CIRCUIT
10	PRINT HEAD

[FIG. 6]

A:	INITIAL SETTING CONTROL PROGRAM
	PAPER MEASURING PROCESS PROGRAM
	RESPONSE DELAY CALCULATING/SETTING PROCESS PROGRAM
B:	PRINT CONTROL PROGRAM
	PAPER FRONT END DETECTING PROCESS PROGRAM
	PAPER REAR END DETECTING PROCESS PROGRAM
	(PRINTABLE DISTANCE CORRECTING PROCESS PROGRAM)



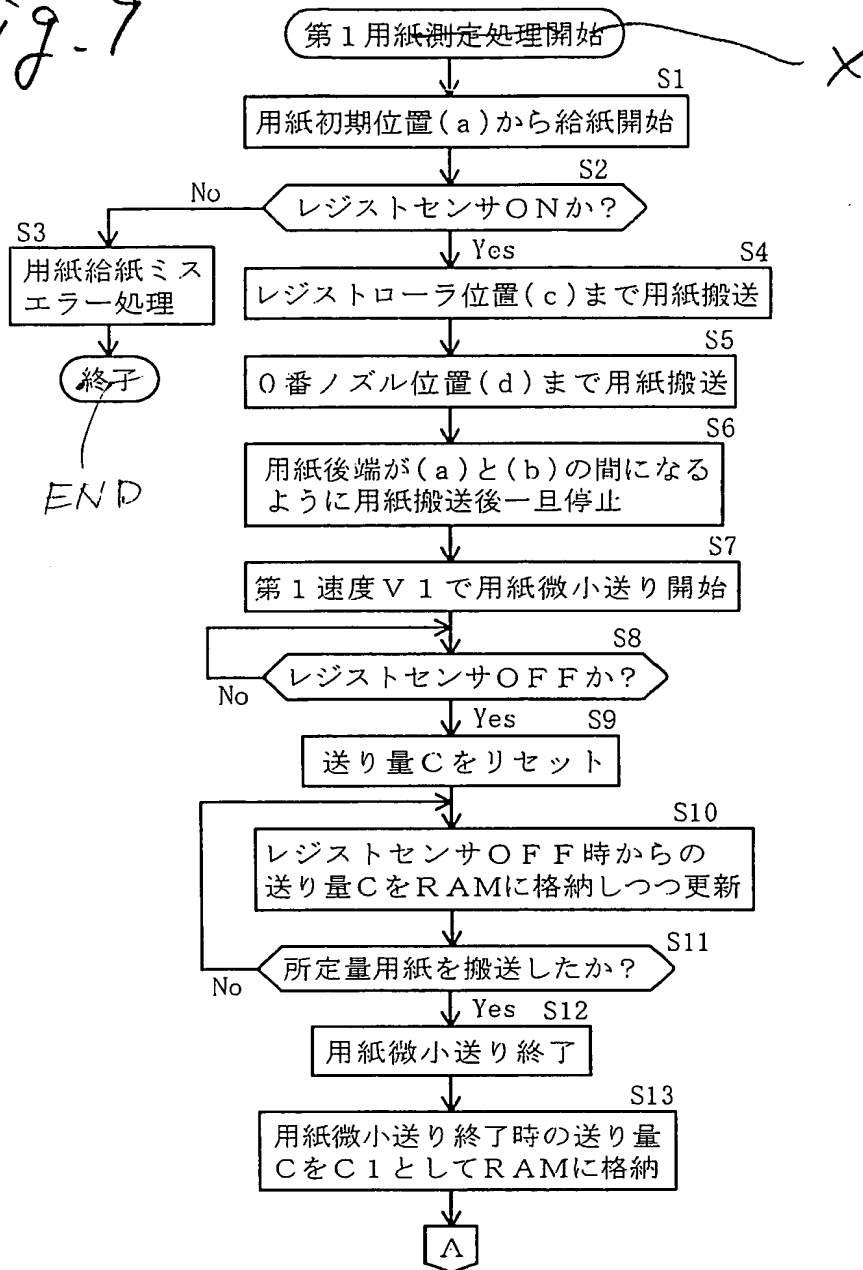
【図8】



1. 0番ノズルで印字していく。
2. ある位置で印字を止めて、印字した結果をメディアセンサで読む。
3. 図の矢印間の距離Aを0番ノズル—メディアセンサ間距離としてEEPROMに格納する。

【図9】

Fig. 9



【図10】

[FIG. 9]

X: FIRST PAPER MEASURING PROCESS START

S1 START PAPER FEEDING AT PAPER INITIAL POSITION (a)

S2 IS REGISTRATION SENSOR ON?

S3 PERFORM PAPER FEED ERROR HANDLING

S4 TRANSPORT PAPER TO REGISTRATION ROLLER POSITION (c)

S5 TRANSPORT PAPER TO NO.0 NOZZLE POSITION (d)

S6 TRANSPORT AND ONCE STOP PAPER SO THAT PAPER REAR END IS
BETWEEN POSITIONS (a) AND (b)

S7 START PAPER MICRO-FEEDING AT FIRST SPEED V1

S8 IS REGISTRATION SENSOR OFF?

S9 RESET FEED AMOUNT C

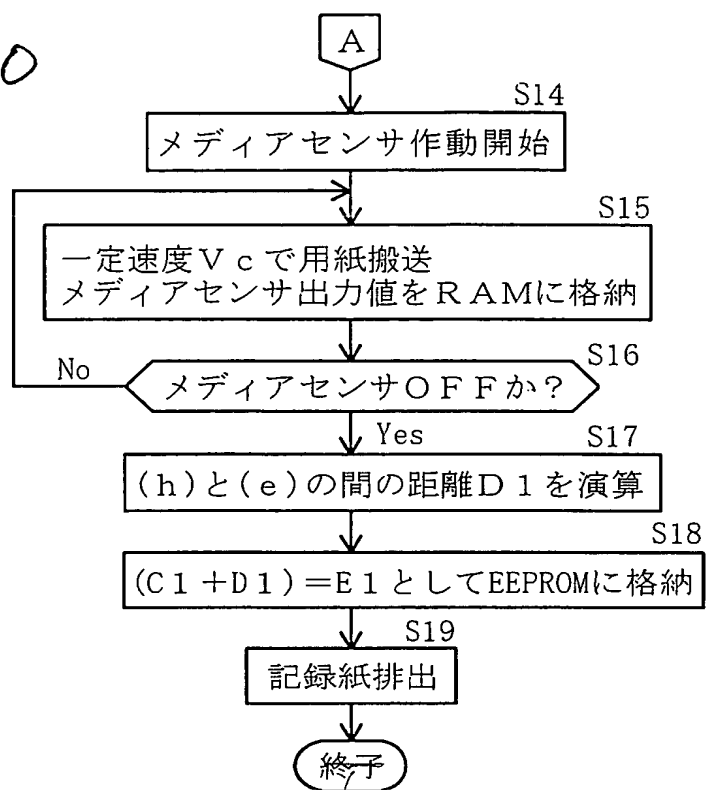
S10 UPDATE FEED AMOUNT C AFTER REGISTRATION SENSOR IS TURNED
OFF, WHILE STORING FEED AMOUNT C INTO RAM

S11 HAS PAPER BEEN TRANSPORTED BY PREDETERMINED AMOUNT?

S12 TERMINATE PAPER MICRO-FEEDING

S13 SET FEED AMOUNT C AT THE TIME WHEN PAPER MICRO-FEEDING
HAS BEEN FINISHED AS C1, STORE THE AMOUNT C1 INTO RAM

Fig. 10



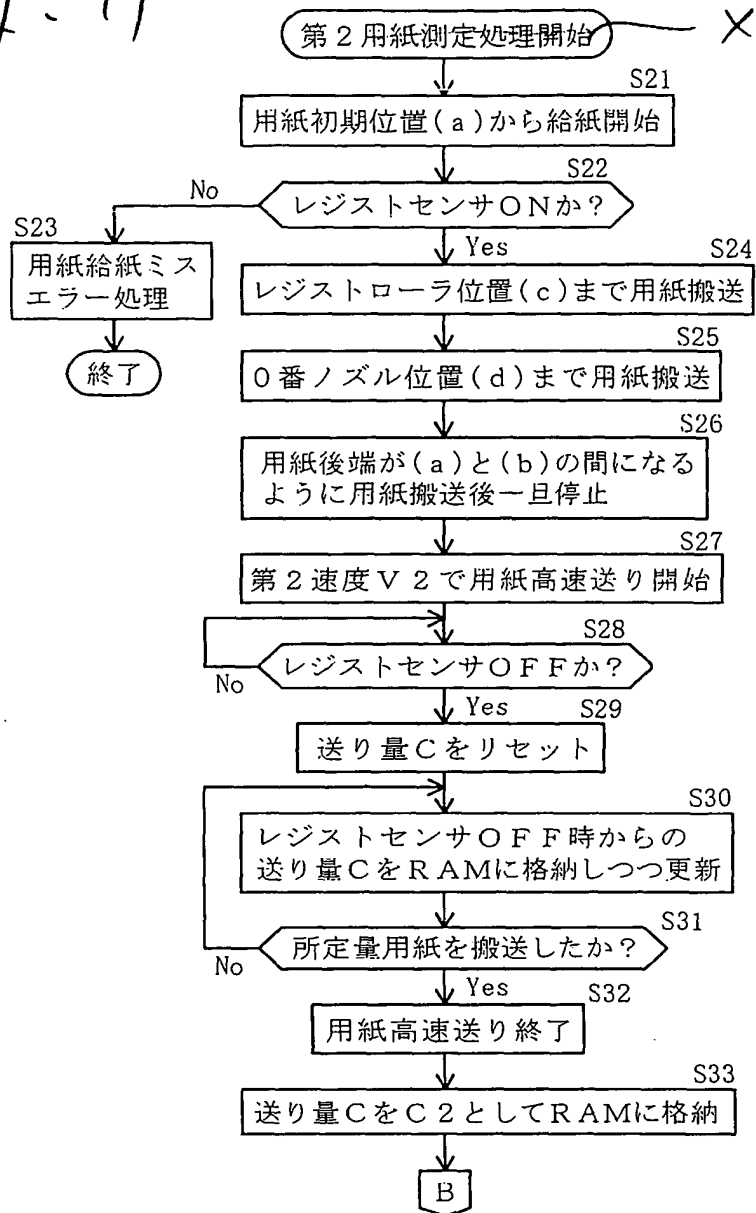
【図11】

END

[FIG. 10]

- S14 START ACTUATING MEDIA SENSOR
- S15 TRANSPORT PAPER AT CONSTANT SPEED V_c , AND STORE MEDIA
 SENSOR OUTPUT VALUE INTO RAM
- S16 IS MEDIA SENSOR OFF?
- S17 OBTAIN DISTANCE D_1 BETWEEN (h) AND (e) ARITHMETICALLY
- S18 STORE DISTANCE $(C_1 + D_1) = E_1$ INTO EEPROM
- S19 DISCHARGE RECORDED PAPER

Fig. 11



【図12】

[FIG. 11]

X: SECOND PAPER MEASURING PROCESS START

S21 START PAPER FEEDING AT PAPER INITIAL POSITION (a)

S22 IS REGISTRATION SENSOR ON?

S23 PERFORM PAPER FEED ERROR HANDLING

S24 TRANSPORT PAPER TO REGISTRATION ROLLER POSITION (c)

S25 TRANSPORT PAPER TO NO.0 NOZZLE POSITION (d)

S26 ONCE STOP PAPER AFTER TRANSPORTING PAPER SO THAT
PAPER REAR END IS BETWEEN (a) AND (b)

S27 START HIGH-SPEED PAPER FEEDING AT SECOND SPEED V2

S28 IS REGISTRATION SENSOR OFF?

S29 RESET FEED AMOUNT C

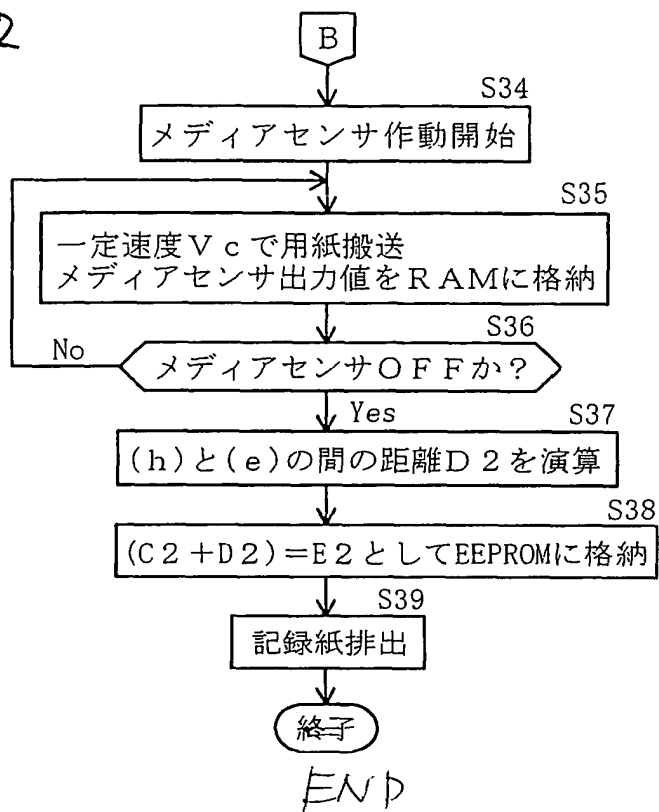
S30 UPDATE FEED AMOUNT C AFTER REGISTRATION SENSOR IS OFF,
WHILE STORING FEED AMOUNT C INTO RAM

S31 HAS PAPER BEEN TRANSPORTED BY PREDETERMINED AMOUNT?

S32 TERMINATE HIGH-SPEED PAPER FEEDING

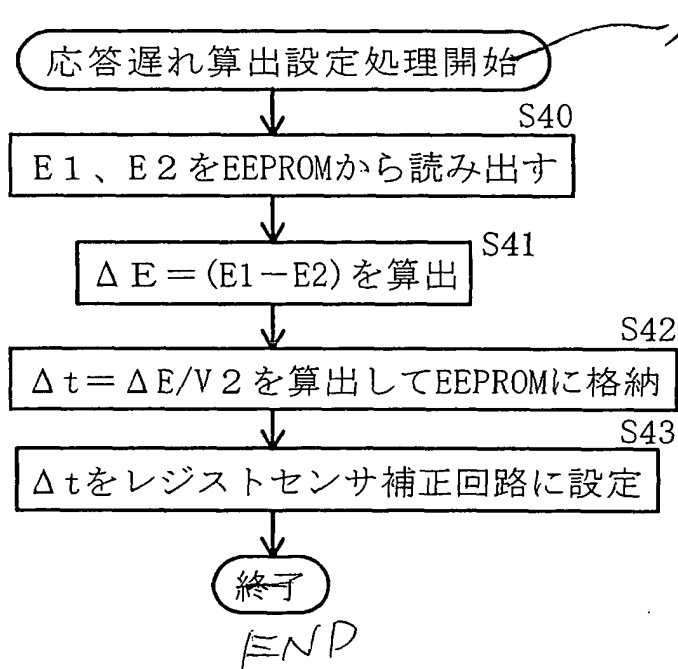
S33 STORE FEED AMOUNT C AS C2 INTO RAM

Fig. 12



【図13】

Fig. 13



【図14】

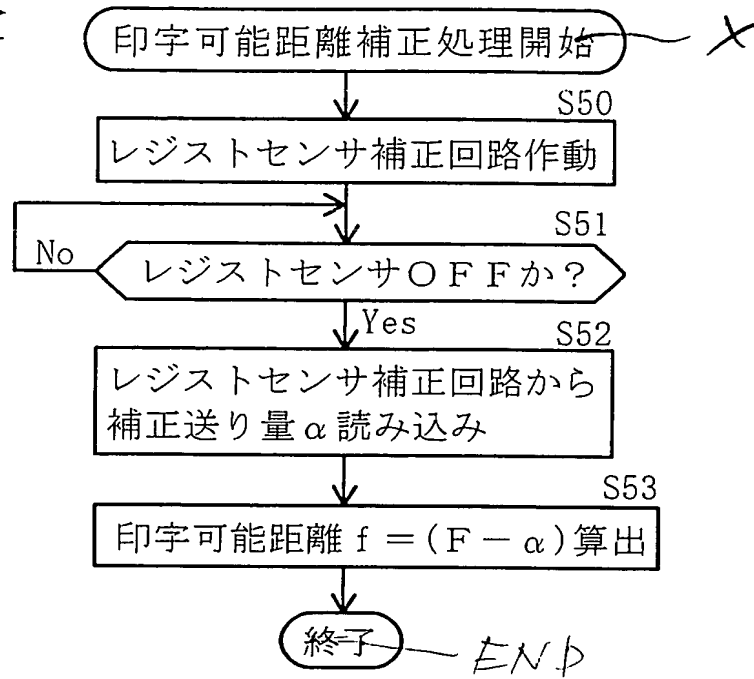
[FIG. 12]

S34 START ACTUATING MEDIA SENSOR
S35 TRANSPORT PAPER AT CONSTANT SPEED V_c , AND STORE MEDIA
 SENSOR OUTPUT VALUE INTO RAM
S36 IS MEDIA SENSOR OFF?
S37 OBTAIN DISTANCE D_2 BETWEEN (h) AND (e) ARITHMETICALLY
S38 STORE DISTANCE $(C_2+D_2)=E_2$ INTO EEPROM
S39 DISCHARGE RECORDED PAPER

[FIG. 13]

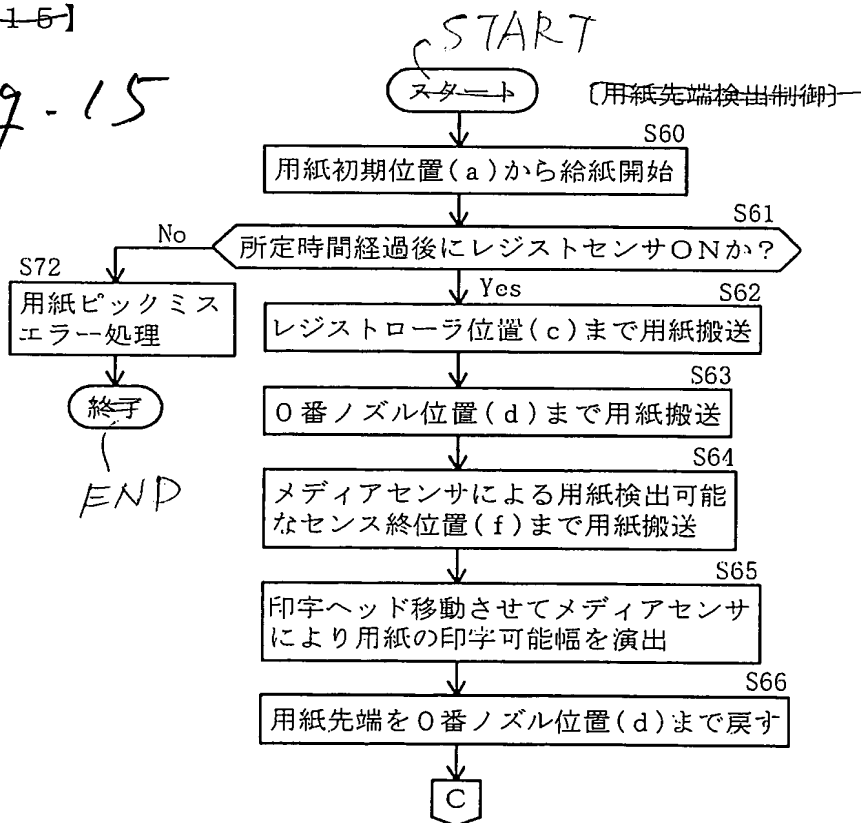
X : RESPONSE DELAY CALCULATING/SETTING PROCESS START
S40 READ E_1 AND E_2 FROM EEPROM
S41 CALCULATE $\Delta E=(E_1-E_2)$
S42 CALCULATE $\Delta T=\Delta E/V_2$, AND STORE ΔT INTO EEPROM
S43 SET ΔT FOR REGISTRATION SENSOR CORRECTING CIRCUIT

Fig. 14



【図15】

Fig. 15



【図16】

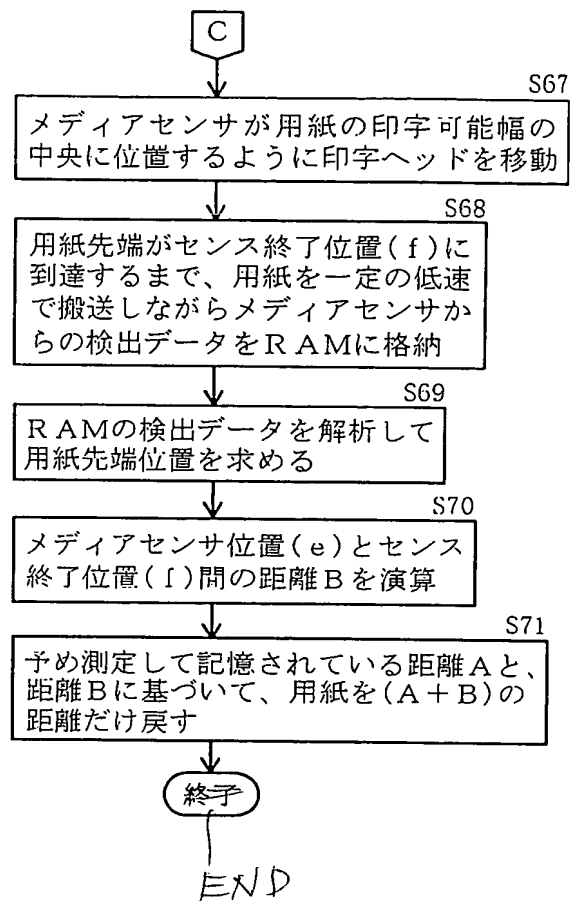
[FIG. 14]

X: PRINTABLE DISTANCE CORRECTING PROCESS START
S50 ACTUATE REGISTRATION SENSOR CORRECTING CIRCUIT
S51 IS REGISTRATION SENSOR OFF?
S52 READ CORRECTION FEED AMOUNT α FROM REGISTRATION SENSOR
CORRECTING CIRCUIT
S53 CALCULATE PRINTABLE DISTANCE $f=(F-\alpha)$

[FIG. 15]

S60 START PAPER FEEDING AT PAPER INITIAL POSITION (a)
S61 IS REGISTRATION SENSOR ON AFTER PREDETERMINED TIME HAS
PASSED?
S62 TRANSPORT PAPER TO REGISTRATION ROLLER POSITION (c)
S63 TRANSPORT PAPER TO NO.0 NOZZLE POSITION (d)
S64 TRANSPORT PAPER TO SENSE END POSITION (f) WHERE PAPER
CAN BE DETECTED BY MEDIA SENSOR
S65 MOVE PRINT HEAD AND OBTAIN PRINTABLE WIDTH OF PAPER
ARITHMETICALLY BY MEDIA SENSOR
S66 BRING PAPER FRONT END BACK TO NO.0 NOZZLE POSITION (d)
S72 PERFORM PAPER PICK ERROR HANDLING

Fig. 16



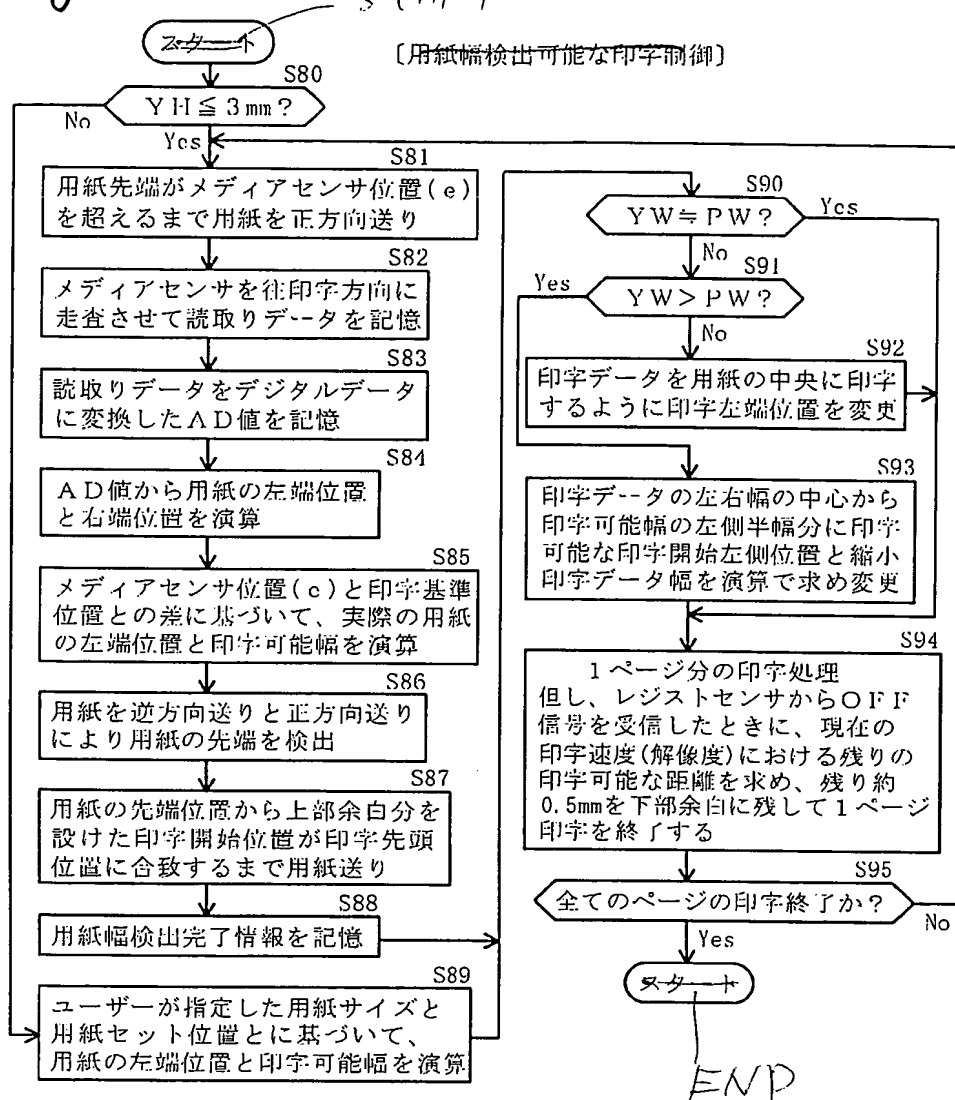
【図17】

[FIG. 16]

- S67 MOVE PRINT HEAD SO THAT MEDIA SENSOR IS LOCATED AT CENTER
 OF PRINTABLE WIDTH OF PAPER
- S68 STORE DETECTION DATA FROM MEDIA SENSOR INTO RAM WHILE
 TRANSPORTING PAPER AT CONSTANT LOW SPEED TILL PAPER
 FRONT END REACHES SENSE END POSITION (f)
- S69 ANALYZE DETECTION DATA IN RAM AND OBTAIN PAPER FRONT END
 POSITION
- S70 OBTAIN DISTANCE B BETWEEN MEDIA SENSOR POSITION (e) AND
 SENSE END POSITION (f) ARITHMETICALLY
- S71 BRING BACK PAPER BY DISTANCE (A+B) BASED ON DISTANCES
 A AND B MEASURED AND STORED IN ADVANCE

Fig. 17

START



【図18】

[FIG. 17]

- S81 FEED PAPER FORWARD TILL PAPER FRONT END GOES THROUGH MEDIA SENSOR POSITION (e)
- S82 MAKE MEDIA SENSOR SCAN PAPER IN OUTWARD PRINT DIRECTION, AND STORE READ DATA
- S83 STORE AD VALUE OBTAINED BY CONVERTING READ DATA INTO DIGITAL DATA
- S84 ARITHMETICALLY OBTAIN LEFT END POSITION AND RIGHT END POSITION OF PAPER FROM AD VALUE
- S85 ARITHMETICALLY OBTAIN REAL LEFT END POSITION AND REAL PRINTABLE WIDTH OF PAPER BASED ON MEDIA SENSOR POSITION (e) AND PRINT REFERENCE POSITION
- S86 DETECT FRONT END OF PAPER BY BACKWARD FEEDING AND FORWARD FEEDING OF PAPER
- S87 FEED PAPER TILL PRINT START POSITION OF PAPER SIDE PROVIDED WITH TOP BLANK FROM FRONT END POSITION OF PAPER CORRESPONDS TO PRINT START POSITION OF PRINTING SIDE
- S88 STORE INFORMATION OF COMPLETION OF PAPER WIDTH DETECTION
- S89 ARITHMETICALLY OBTAIN LEFT END POSITION AND PRINTABLE WIDTH OF PAPER BASED ON PAPER SIZE SPECIFIED BY USER AND PAPER SET POSITION
- S92 CHANGE PRINT LEFT END POSITION SO THAT PRINT DATA IS PRINTED AT CENTER OF PAPER
- S93 ARITHMETICALLY OBTAIN PRINT START LEFT POSITION FROM CENTER OF LEFT/RIGHT WIDTH OF PRINT DATA AND REDUCED PRINT DATA WIDTH WITH WHICH PRINTING CAN BE PERFORMED IN LEFT HALF WIDTH OF THE PRINTABLE WIDTH, AND CHANGE PRINT DATA WIDTH INTO REDUCED PRINT DATA WIDTH
- S94 PERFORM PRINTING OF ONE PAGE, WHEREAS REMAINING PRINTABLE DISTANCE IN PRESENT PRINT SPEED (RESOLUTION) IS OBTAINED WHEN OFF SIGNAL IS RECEIVED FROM REGISTRATION SENSOR, WHEREUPON PRINTING OF ONE PAGE IS TERMINATED WITH BLANK OF ABOUT 0.5 mm LEFT IN BOTTOM PORTION
- S95 HAVE ALL THE PAGES BEEN PRINTED OUT?

Fig. 18

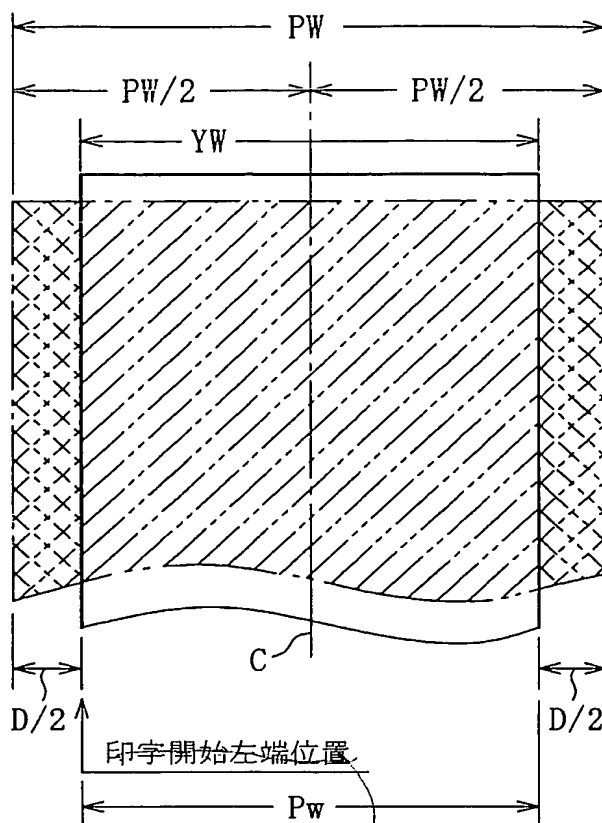
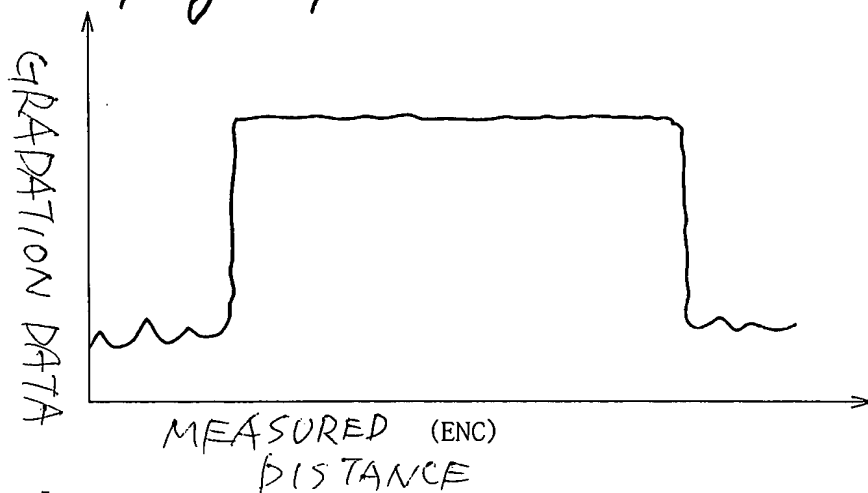
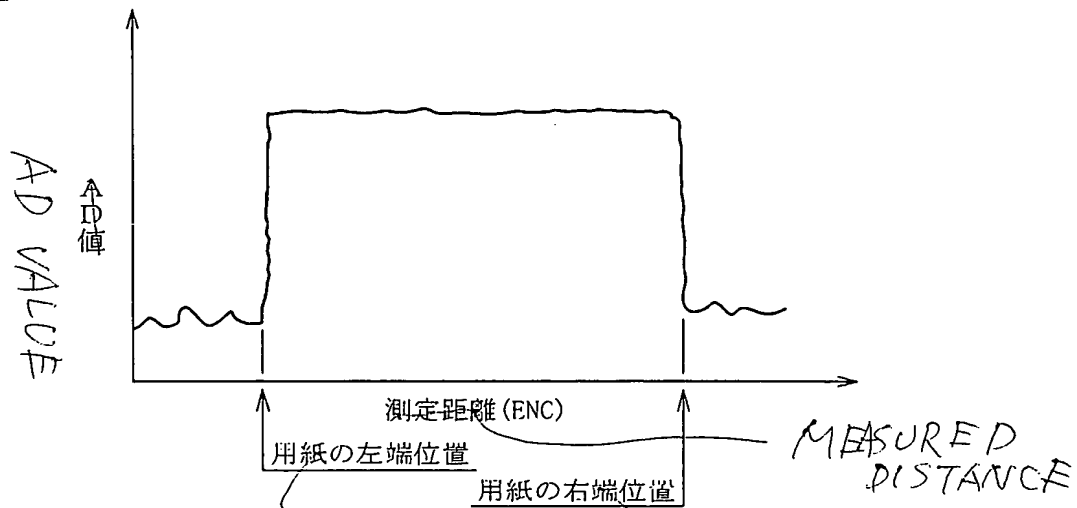


Fig. 19



PRINT START LEFT END POSITION

Fig. 20



【書類名】 要約書
【要約】

LEFT END
POSITION OF PAPER

RIGHT END
POSITION OF PAPER

【課題】 印字手段を有するプリンタにおいて、用紙後端を検出する精度を高めること、用紙後端側の残り印字可能距離を検知する精度を高めること、などである。

【解決手段】 プリンタ組立後の調整段階において、用紙後端をレジストセンサ69が検出してからメディアセンサ68が検出するまでの、低速の第1速度V1で搬送した場合の第1搬送距離E1と高速の第2速度で搬送した場合の第2搬送距離Eを求め、第1、第2搬送距離E1、E2の差 ΔE を用いてレジストセンサ69の応答遅れ時間 Δt を算出して制御装置に格納し、プリンタの使用段階において、制御装置に格納された応答遅れ時間 Δt を用いて、レジストセンサ69で用紙後端を検出後の用紙後端側の残り印字可能距離を f に補正する。

【選択図】 図7